

Medium Kit Without Serum and Without Growth Factors

Cat# NB-11-0054

Introduction

Kit consists of 500mL CSC Medium (formulated without serum and without growth factor) and 10mL Attachment Factor™. This is not a complete medium. For complete medium, add 10 - 20% Serum (Defined FBS or equivalent) and animal derived growth factor (CultureBoost NB-11-0066) or human recombinant growth factor (CultureBoost-R NB-11-0067). NB-11-0054 is Certified and intended for experimental application. CSC media and reagents are sterile, made with WFI and all components are cGMP and ISO Compliant.

Appropriate Use

Certified for use with more than 100 human and animal cell cultures and cell lines including these CSC and ACBRI Certified cells:

Human:

Bone Marrow Cells (CFU-F and Erythroid Burst Cultures)
Connective Tissue Cells
Dermal Fibroblast Cells
Endothelial Cells (Aortic, Arterial, Coronary Artery, Vascular and Venous)
Fetal Lung Cells
Embryonic and Adult Stem Cells
Fibroblast Cells
Glomerular Mesangial Cells
Immortalized / Tumor-derived Mesenchymal Cells
Microvascular Cells (Cerebral, Coronary, Dermal, Glomerular, Liver, Lung and Retinal)
Smooth Muscle Cells
Tumor Neovascular Cells

Animal:

Bovine and Porcine large vessel and microvessel Endothelial Cells

Characteristics of Medium formulated without Serum

CSC Medium contains no added hormones.

CSC Medium contains no antibiotics; however, Bac-Off®, Catalog NB-11-0074, is the recommended antibiotic for all CSC medium. Bac-Off® is at or above the [2ng/mL] MIC of aerobic gram-positive and gram-negative microorganisms. (See Bac-Off® certificate.)

CSC Medium contains no phenol red. Phenol red in cell culture medium binds to receptors on cell surfaces and causes the cell to respond as though pharmacologic levels of estrogen and/or inflammatory mediators (such as prostaglandin or thromboxane A2) are present in the medium. It is difficult to understand how a realistic baseline can be ascertained under these conditions. The side-effects of phenol red can be avoided very simply: leave it out. The presence of phenol red is unnecessary and potentially catastrophic to experimentation.

Recommended Companion Products for CSC Medium and CSC/ACBRI Cells:

Use of Attachment Factor™ is strongly recommended. Phenotypic and physiologic response motifs are mediated in vivo by cells from information transduced from the extracellular compartment. Culture of differentiated, polar, anchorage dependent cells in any medium requires attention to information processed by the cell from the extracellular matrix (ECM). Attachment Factor™ is an analog for the Natural ECM, provides information to the cell, and helps mediate these processes. Phenol red is NOT included in the formulation. (Refer to the CSC Certificate for Attachment Factor™.)

Use of the Passage Reagent Group (PRG) is strongly recommended. Culture of fastidious cells in any medium requires careful formulation and calibration of reagents in order to detach cells for passage without excessive cytoskeletal and membrane damage. Trypsin is not “inactivated” by serum: the reduction of enzymatic activity on cell membranes is (at best) competitive and may be ineffective. Other enzymes (chymotrypsin, cathepsins, neutral proteases, etc.) not inactivated by serum in commercial (1:250) trypsin preparations make “inactivation” with serum during passage illogical. The PRG was engineered to meet the special challenges of modern cell culture, where thoughtful management of phenotype is important. Refer to the CSC Certificate for PRG.

Use of CSC Cell Freezing Medium is strongly recommended: Cell Freezing Medium is formulated using conditioned CSC Medium with DMSO as the principal cryoprotective agent. CSC Cell Freezing Medium is qualified by CSC and ACBRI for freezing cells whether cultured in serum-free or serum containing medium. Refer to the CSC Certificate for Cell Freezing Medium.

Handling and Storage

Cell Storage

Remove the vial(s) from the dry ice shipping container and immediately transfer to liquid

nitrogen. **ALWAYS store cells under liquid nitrogen.** Inapparent yet severe damage to membrane and cytoskeletal components results from chronic temperature fluctuations.

Medium Storage

CSC Serum containing Medium is shipped at ambient temperature. If the entire unit will not be used within 30 days, activate the medium with the enclosed supplement then aliquot and freeze in smaller units which will be used within 30 days.

Upon receipt, if the full 500mL media unit will be used within 30 days, immediately refrigerate the medium and supplements. Once the unit is activated, or any component of the medium kit is opened, the shelf life is 30 days at refrigerated (4 - 8°C) temperatures.

Additional information

Thawing and Feeding Cells

1. Thaw CSC medium. Store refrigerated at 4-8°C.
2. Warm sufficient activated CSC Medium to 37°C in a water bath.
3. Thaw the vial(s) of cells by immersing in a 37°C water bath. Observe carefully with gentle agitation and remove from the water bath just before the last of the ice disappears. This ensures that the cells are always kept close to the triple-point of water.
4. Cleanse the vial(s) with 90% ethanol using a sterile 2X2 pad.
5. Immediately transfer the contents of the vial to at least 10 volumes of ice-cold Medium in a sterile centrifuge tube. Keep in an ice/water bath throughout to maintain triple-point temperature: cell viability is negatively affected by temperature excursions.
6. Centrifuge 100-200 X g, 5-7 minutes refrigerated.
7. Aspirate and discard supernatant. Leave 100-150 µl fluid to cover the pellet.
8. Loosen the cell pellet by flicking with fingers.
9. Count and adjust cell concentration at this time per your usual protocol.
10. Prepare the new culture surface using Attachment Factor™.
 - (a) Warm Attachment Factor™ to 37°C in the water bath.
 - (b) Wet the culture surface to be inoculated with Attachment Factor™.
 - (c) Aspirate and discard excess. Rinsing and/or drying are NOT necessary.
 - (d) The culture may be inoculated at once.
11. Re-suspend cells in CSC Medium warmed to 37°C.
12. Seed on a tissue culture surface freshly coated with Attachment Factor.
13. Incubate @ 37°C, 5% CO₂, 100% humidity.
14. The vial of cells seeds a 75cm sq culture.

For Cell Passage

Refer to Passage Reagent Group™ instructions for more details.

- To feed, aspirate (and discard) spent medium. Add fresh CSC Medium.
- Feed at 12-24 hours and at least every 48 hours thereafter.
- As cultures approach confluence, daily feeding should be considered.